Recovering from a Recession

The Role of Start-Ups

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by John Friar

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Pioneer's Mission

Pioneer Institute is an independent, non-partisan, privately funded research organization that seeks to improve the quality of life in Massachusetts through civic discourse and intellectually rigorous, data-driven public policy solutions based on free market principles, individual liberty and responsibility, and the ideal of effective, limited and accountable government.

Pioneer's Centers

This paper is a publication of the Center for Economic Opportunity, which seeks to keep Massachusetts competitive by promoting a healthy business climate, transparent regulation, small business creation in urban areas and sound environmental and development policy. Current initiatives promote market reforms to *increase the supply of affordable housing*, *reduce the cost of doing business*, and *revitalize urban areas*.

The Center for School Reform seeks to increase the education options available to parents and students, drive system-wide reform, and ensure accountability in public education. The Center's work builds on Pioneer's legacy as a recognized leader in the charter public school movement, and as a champion of greater academic rigor in Massachusetts' elementary and secondary schools. Current initiatives promote *choice and competition, school-based management, and enhanced academic performance in public schools.*

The Center for Better Government seeks limited, accountable government by promoting competitive delivery of public services, elimination of unnecessary regulation, and a focus on core government functions. Current initiatives promote *reform of how the state builds, manages, repairs and finances its transportation assets as well as public employee benefit reform.*

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Foreword

The Massachusetts economy has suffered – along with that of other states – through the effects of the latest recession. Facing many of the same pressures as the rest of the country, the Bay State's unemployment rate soared. While we have enjoyed modest gains in employment over the past year, hundreds of thousands of people are out of work, while the threat of a 'jobless recovery' looms for many workers.

Pioneer believes that we must take stock not only of what is immediately apparent in the economy, but also take a longer view. We are concerned that the state has essentially experienced no growth in its employment base in 20 years. We are further troubled by the fact that, unlike the rest of the country which created millions of jobs, Massachusetts has not climbed out of the deep jobs hole it found itself in after the 2001 dot-com bubble.

How have our economy and the profile of our businesses changed over time? Which industries are creating jobs? What kinds of businesses remain in Massachusetts? Which ones are likely to expand? What are the policy levers that we need to pull in order to reinvigorate the entrepreneurial class in the Bay State?

Since 2006, our series of papers on *Massachusetts' New Economy* have centered on two big themes: The business climate needed to grow jobs and the trends in job and business creation in the Bay State. Our work began with *Measuring Up? The Cost of Doing Business* (2006), a detailed exposition of business costs for nine key sectors in Massachusetts' economy on the topic of the business climate. Over three years, we explored specific reforms to key cost disadvantages regarding unemployment insurance, commercial rents, and health care, to point a direction forward to strengthening Massachusetts' competitive position.

Along the way, we have kept our eye on key sectors, in September of 2010, partnering with the Massachusetts High Technology Council, to release *Keeping Massachusetts Competitive*, which analyzed the concerns of leaders of innovation sector businesses.

In January of 2010, Pioneer Institute released our first white paper on the changing jobs picture in Massachusetts, entitled *Failure to Thrive*. The paper demonstrated that Massachusetts has failed to create jobs over the last eighteen years and is developing a problem with entrepreneurship.

We followed that up with *Heading Down*, which showed the devastating impact that losing 5,000 headquarters has had on employment in Massachusetts. Next was *Playing the Lottery*, which detailed the surprisingly modest impact from firm relocation.

Mostly recently, Pioneer released *The Big Shrink*, which revealed a troubling trend— Massachusetts is creating fewer businesses and those businesses have shrunk dramatically in size.

Now, we cap the series with *Recovering from a Recession*, which provides the news that most post-recession job growth occurs at firms three years old or younger. Massachusetts' problem is that it has seen a drop-off in the creation of new firms, the very engine that past experience tells us will be needed to grow in the aftermath of the recession.

The current economic development conversation is too focused on the government's narrow selection of favored 'sweet spot' industries to solve the jobs challenge our state faces. The current policy trajectory lacks adequate grounding in the broad dynamics of job creation to succeed.

Our *Massachusetts' New Economy* series challenges policymakers, business and community leaders, and the fourth estate to re-examine the basic assumptions undergirding economic development policymaking in the Bay State. Without the courage to rethink our current strategy, we will not create the jobs citizens of the Bay State need.

James Stergios
Executive Director

Executive Summary

Like the nation as a whole, Massachusetts is emerging from its third recession in twenty years (1990-1991, 2001, and 2008-2009). Unlike the rest of the country, Massachusetts never fully recovered the jobs lost in the state during the 2001 recession and, 10 years later, has even further to go to recover.

A previous study, *Failure to Thrive*, identified three distinct, but related problems. The first is the overall lack of job growth in Massachusetts' economy. While the number of jobs in the US economy grew by 27% from 1990 to 2007, Massachusetts' employment was flat.

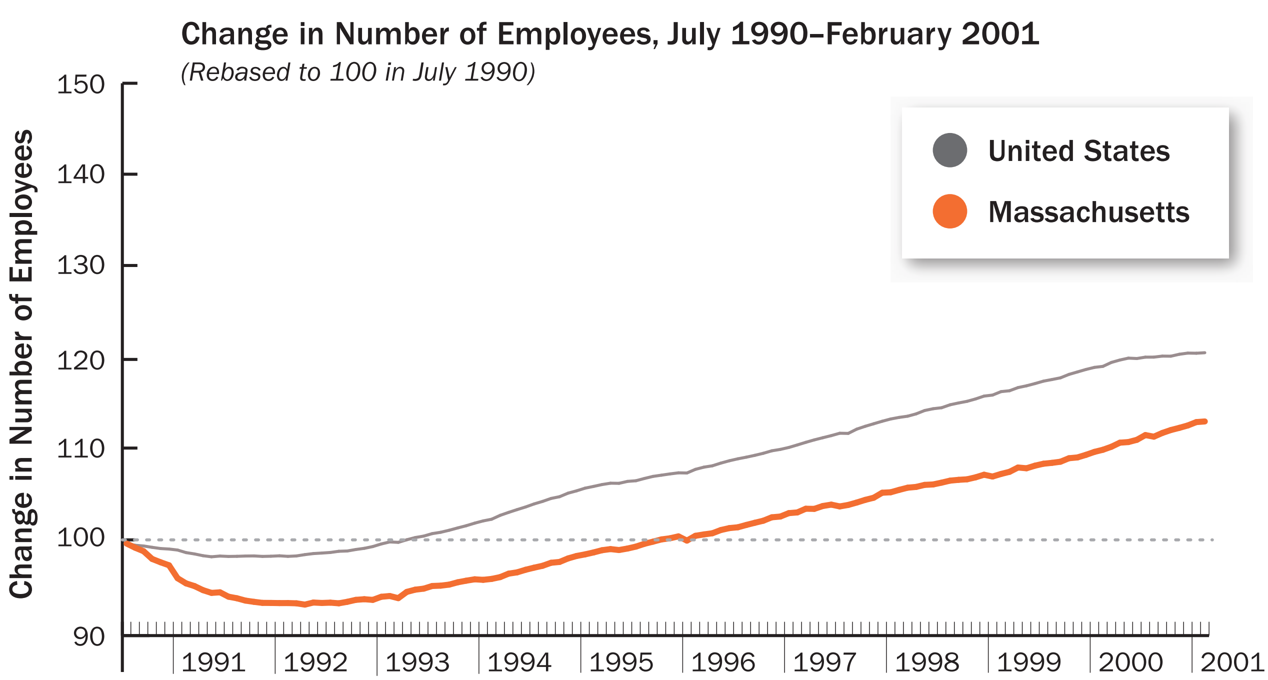
Contributing to this divergence was the second problem. Massachusetts has not bounced back from recent recessions like the rest of the country. The length of time that Massachusetts took to recover from the 1991 recession was twice that of the US as a whole. The state never recovered at all from the 2001 recession.

Finally, Massachusetts' inability to bounce back from recession is, in part, related to an entrepreneurship problem. Job creation from firm births in Massachusetts is not keeping up with job loss from firm deaths.

To determine how long Massachusetts takes to bounce back from recession, the time it takes to return to peak, pre-recession employment was analyzed in Figure 1A.[1] For example, US employment prior to the 1990-1991 recession peaked in June 1990, falling to its recession low in May 1991. US employment returned to its June 1990 peak in February 1993. The whole cycle took only 2.7 years. In Massachusetts, the same cycle took 6.6 years.

Flash forward a decade and the US cycle starting in 2001 was 4 years; conversely, and ominously for the state, Massachusetts never returned to its February 2001 employment peak, as seen in Figure 1B. It came close in March 2008, but again began losing jobs due to the latest recession. Nevertheless, if for the purposes of comparison we allow coming close to stand in for a return to peak employment, Massachusetts had a 7-year cycle sinking into and then coming out of the 2001 recession.

Figure 1A



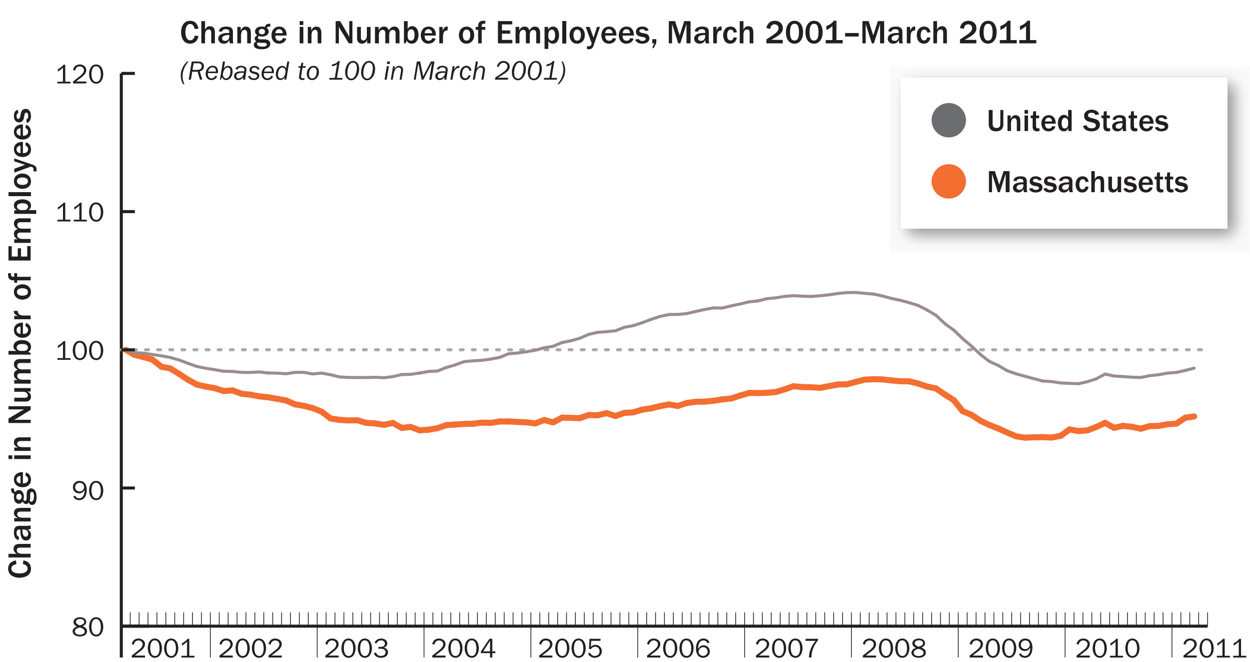
Unfortunately, for Massachusetts the third time does not appear to be the charm. As of December 2010, the state is still some 100,000 jobs short of where it was in 2008, never mind where it was in 2001. Massachusetts has only 94% of the jobs it did a decade ago. The nation as a whole has 98%.

The question is why. Why does Massachusetts appear to take longer than the rest of the country to bounce back from recession? Some of the contributing factors include the following:

- Following the 1990-1991 recession, the number of jobs created by firm births was higher than the number of jobs lost due to firm deaths over a five and ten year period. Unfortunately, this did not hold true in the wake of the 2001 recession. Overall, net job loss was the result. This suggests a problem generating new jobs from firm births, corroborating the original findings from *Failure to Thrive*.
- Young firms (defined as 3 years or less) created jobs for four years following the 1990-1991 recession (while older firms did not). Older firms began creating jobs starting only in the fifth year after the recession. Again, this pattern did not hold true after 2001, principally due to the onset of the 2008 recession.
- Standalone firms are increasingly important for gross and net job creation at both young and old firms. In fact, standalone firms account for the majority of jobs created at older firms. Older branches and headquarters are, in the aggregate, either shedding jobs or maintaining their level of employment over time.
- Taking into account the four primary factors contributing to job creation and loss – firm birth, death, expansion, and contraction – net job creation was positive in every year for young firms and negative in every year for older firms.

These four findings present key challenges for policy makers. First, efforts to stimulate new firm creation must be increased (particularly in the face of declining firm sizes). Second, old firms cannot be relied on to create jobs for a fairly significant number of years coming out of a recession. Young firms are the key to post-recession job creation.

Figure 1B



Introduction

The banks have been stabilized, the market continues to recover, large firms are again reporting profit, but, still, not enough of them are hiring. This is the issue that dominates economic debate in the United States – the jobless recovery.

Stripped to its basic level, jobs are created in one of two ways. New jobs are created when new firms are born or when existing firms expand (and, within a narrow geographic area, when firms relocate to it from outside, though, as was highlighted in Failure to Thrive, this number, at least in Massachusetts, is in fact quite small). In policy circles there has been some debate as to whether it is better for economic development policy to focus on the former (i.e., help new firms start), or the latter (i.e., help existing firms expand). The stimulus packages that came out of Congress were primarily designed to help existing companies grow. These programs do not appear to have achieved their desired effect. So the discussion has shifted. As a nation, we are again recognizing the importance of entrepreneurship as an engine of job creation.

What follows is an analysis of employment trends in Massachusetts from 1990 to 2007, with particular focus on the years immediately following the 1990-1991 and 2001 recessions and on the different impacts on growth trends made by young and old firms. For the purposes of this analysis, 'young firms' are defined as firms from birth to 3 years old. Older firms are any firms operating in the state for more than 3 years.

On average, older firms did not begin hiring again for five years after the 1990-1991 recession and did not begin rehiring at all in the wake of the 2001 recession. What marks the primary difference between the 1990-1991 and 2001 recessions is the difference in the number of jobs created by young firms. In the wake of the 1990-1991 recession, young firms led the way when it came to hiring again. In the last decade, young firms, though they continued to add jobs by expanding, did not add nearly as many from firm birth as they had in the previous decade.

Methodology and Data

The data used in this brief are drawn from the National Establishment Time-Series Database (NETS Data), which has been used in a number of different studies to examine the effects of business relocation on employment change. These data follow all establishments in Massachusetts, including employer and non employer firms, both private and public, over time. With this information, total employment flows, and not just net results, can be tracked at the industry level. Each establishment is assigned a unique number that stays with it, whether it moves or is acquired, so it can be tracked over time.

A study by Neumark, Zhang and Wall assessed the reliability of the NETS data along a number of dimensions and found it to be reliable. According to the authors, the strengths of the NETS data include the following: (1) it contains data on almost all establishments operating in the U.S. (both small and large) rather than on only a small sample; (2) it is a commercial data set and therefore lacks confidentiality restrictions; (3) it allows researchers to track establishments' physical relocations via annual changes in business address; (4) it gives researchers the ability to assess changes in employment at a given establishment over time; and (5) it provides researchers the ability to identify new business creation ("births") and elimination of existing establishments ("deaths").

The sample used in the following analysis includes 759,707 observations comprising all of the establishments or firms operating in Massachusetts from 1990 to 2007. It includes 18 years of annual data for all Massachusetts firms regarding their business location, annual sales, number of employees, operational status, industry classification (4-digit SIC code), and type of establishment.

Recapping *Failure to Thrive*

In the United States, the number of employed individuals peaked in December 2007. The country then shed 8.8 million jobs over the next two years before beginning to add jobs again last year. Like the rest of the country, Massachusetts shed jobs in 2008 and 2009. However, what distinguishes Massachusetts is that the state never recovered the jobs lost in the previous recession. Overall, job trends in Massachusetts since 2001 show a significant and negative divergence from the rest of the country.

To help explain this divergence, *Failure to Thrive* examined how jobs were created and lost in Massachusetts in the 18-year period (1990-2007) leading up to the current recession. It analyzed the three basic elements of job creation:

- new firm 'birth'
- existing firm expansion
- relocation of firms from another state.

It also analyzed the three basic elements of job loss:

- firm 'death'
- firm contraction
- firm relocation to another state.

Examining these elements, Failure to Thrive quantified the impact of each on overall employment in Massachusetts.

From 1990 until 2003, Massachusetts' employment trends roughly tracked those of the country as a whole. The state lost jobs between 1990-1992 and 2001-2003 and gained jobs during the intervening years. Between 2003 and 2007, however, the country as a whole experienced significantly greater job growth than did Massachusetts. The overall result was that from 1990 to 2007 the United States experienced net job growth of 26.6%. Massachusetts, on the other hand, showed a net job loss of 0.3% over the same time period, losing a total of 11,816 jobs during the 18 years examined.

To understand this divergence, *Failure to Thrive* analyzed not just net changes in the number of jobs, but also gross flows – a phenomenon identified in the paper as 'flux', as shown in Figure 2.

In an average year, 670,000 jobs (17% of the jobs base) are created or destroyed in Massachusetts. This flux occurs in good economic times and bad, across practically all industries. To compare, the level of flux in California from 1990 to 2007 was roughly equal, as a percentage of its jobs base, to the level of flux in Massachusetts. However, in California, the net result was job growth. In Massachusetts the net result of this flux has been stagnation.

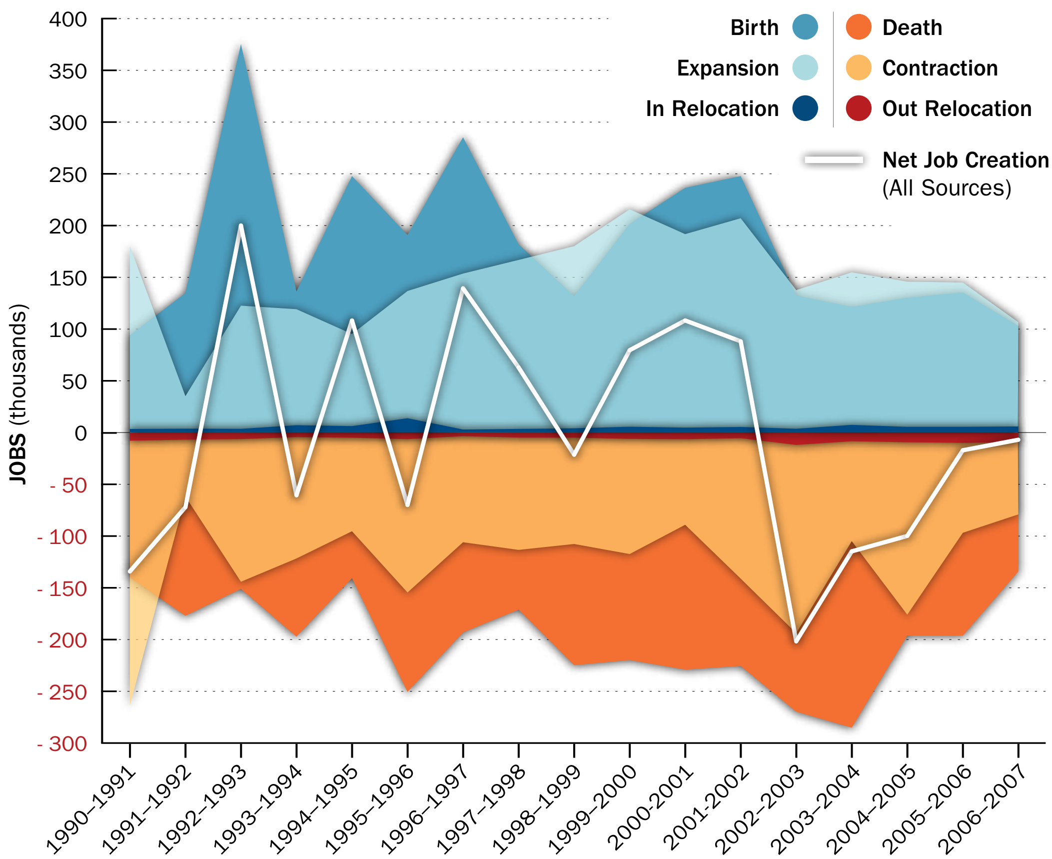
As the data show, despite a minimal net effect here in Massachusetts, businesses are constantly expanding or contracting, forming or dying, and, to a lesser extent, moving across state lines. Job creation accounted for 49.94% of the flux in Massachusetts, while job loss accounted for 50.06%. In other words, more jobs were lost due to companies stopping, shrinking or moving their operations than gained from those starting, growing or relocating to the state.

In the first four years of the recovery starting in 1992, start-up companies in Massachusetts created 210,834 more jobs than were lost due to overall firm deaths. In contrast, during the same time period existing companies continued to shed more jobs than they added. During the four years after the 2001 recession, however, Massachusetts lost a net total of 321,751 jobs because firm deaths outpaced firm births. Existing firms, mostly what are defined as young firms, actually added 95,469 jobs over and above what was lost due to firm contraction during this same time period.

The data clearly suggest that Massachusetts has developed an entrepreneurship problem. Start-up rates and firm sizes have both decreased. Additionally, the analysis demonstrated that:

- Throughout the 18-year period, what drove job creation and loss were firm

Figure 2. Fundamental Components of Job Growth and Loss
(from *Failure to Thrive*)



deaths and births. Less important, though still significant, were firm expansion and contraction, which, on average, generated a net increase in jobs both before and after 2002.

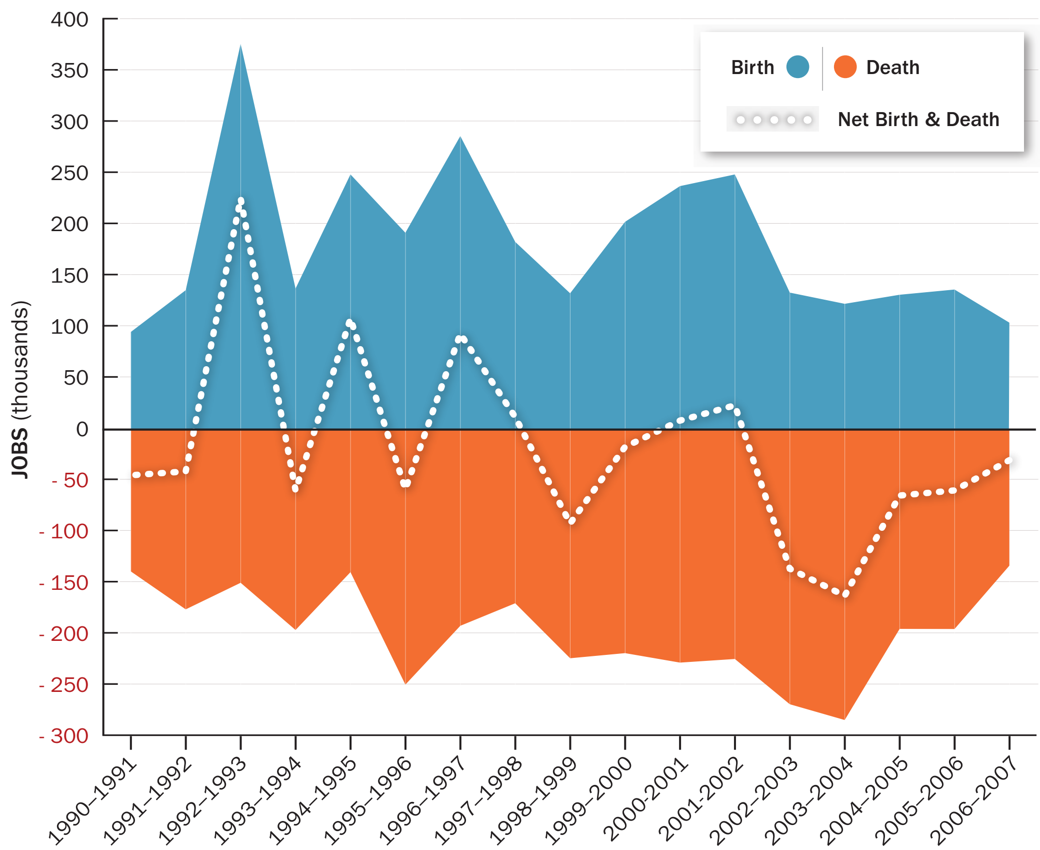
- Some jobs were lost due to the fact that more companies left the state than moved to it, but the overall impact was small.
- Massachusetts is becoming a state of increasingly smaller firms. Since 1990, the state has seen a 67% increase in the total number of companies operating in it, but the average size of the firms has shrunk 40%, from 16.69 employees to 9.96 employees. The combined effect has been stagnant employment.
- Start-up companies are getting smaller. One of the results is that the number of jobs created by firm births has not kept pace with the number of jobs lost to firm deaths.

Births versus Deaths

The comparison of jobs created by firm births and jobs lost to firm deaths since 1990 shown in Figure 3 reveals a significant pattern. Though from year to year there is no consistent pattern as to the net impact on employment of firm births and firm deaths, the overall trend has been consistently down. As a result it has been since 2002 that Massachusetts added jobs from firm births over and above what it lost from firm deaths.

This pattern suggests a failure to create enough jobs at start-up companies. Start-ups were integral to expanding the number of jobs in Massachusetts during the first five years of recovery after the 1990-1991 recession. Given their importance, for the purposes of the remainder of this analysis, the amount of time start-ups were credited with job creation was extended from one year to three years, that is they were credited with any jobs they created in their second and third years of

Figure 3. Number of Jobs Generated by Firm Births and Deaths and Net Change in Employment as a Result



operation, not just their first. This was to more fairly credit them for the jobs they create.

The Impact of Firm Age on Job Creation

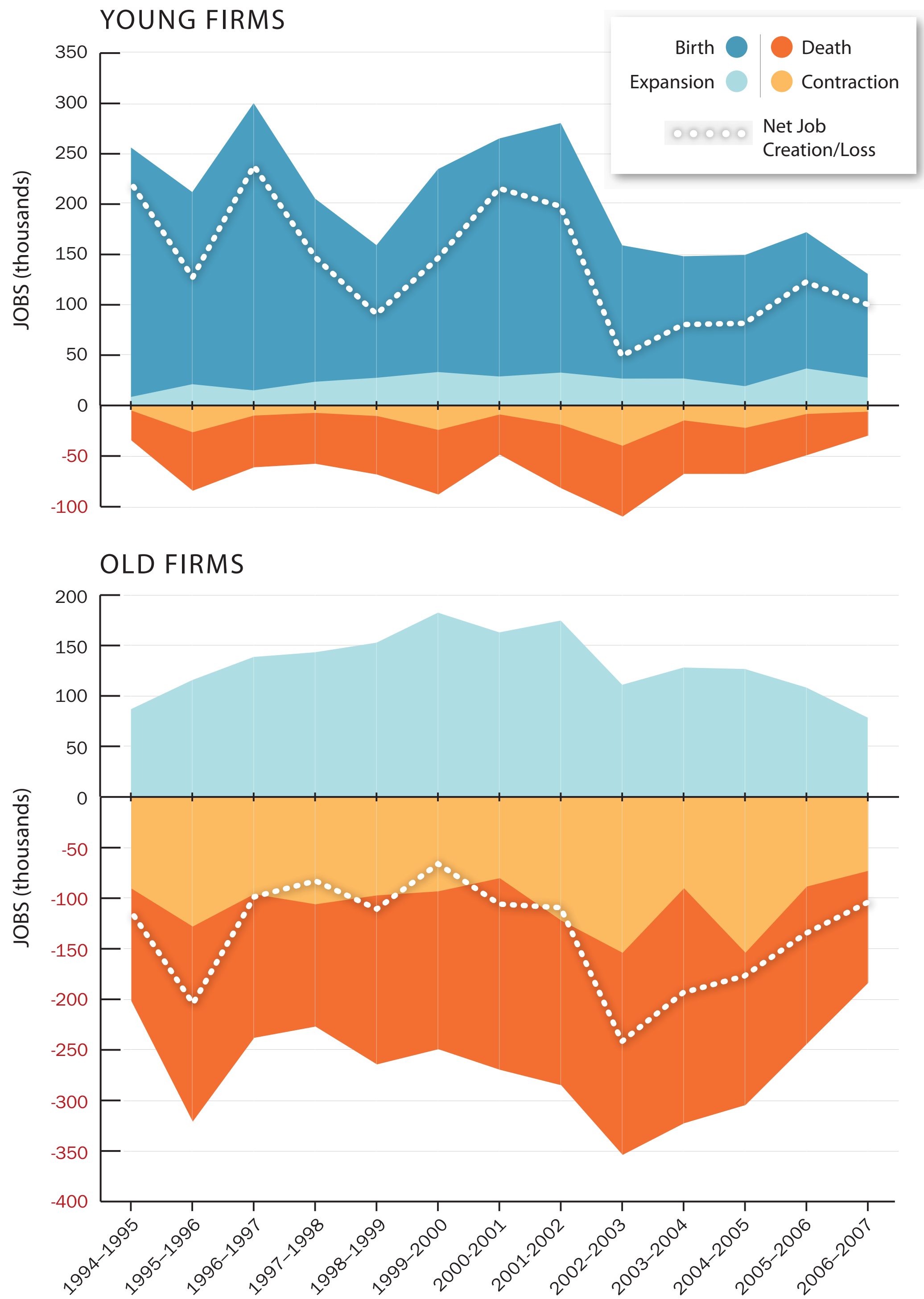
Figure 4 presents a breakdown of firm expansion, contraction and death by young and old firms. Young firms are defined as firms that have been in existence for 3 years or less and old firms defined as firms that have been in existence for more than 3 years.[2]

In the wake of the 1990-1991 recession, older firms did not start to create more net jobs from expansion than younger firms until 1997, or a full five years after the number of jobs in Massachusetts had hit its lowest point (in 1992). After 1997 (until the next recession), both young and old firms contributed to net job growth in the state by expanding operations, but most of the expansion during this time came from older firms.

In the subsequent recession, both young and old firms again experienced net contraction, as one would expect. And coming out of the recession the same initial pattern that emerged from the previous recession held true. After 2003, young firms outpaced older firms in net expansion (except for one year).

The data point to two problems, however. First, though, as in the wake of the previous recession, young firms outpaced older firms when it came to the number of jobs they created by expanding operations, the number of jobs they created from firm births was significantly lower than what young firms had created from firm births during the 1990s. Second, in the fifth year of post-recession growth, when the number of jobs created by older firms from expansion would have been expected to pass the number being created by young firms, another recession set in. As a result, older firms never reasserted themselves in the employment market.

Figure 4. Number of Jobs Generated by Firm Births, Expansion, Contraction and Deaths at Young and Old Firms



Breakdown of Expansion and Contraction for Young and Old Firms by Establishment Type

To dig further into the question of firm expansion, it is helpful to categorize the expansion of both young and old establishments by firm type – stand-alone firms, branches or headquarters. This question becomes particularly relevant when combined with data on average firm size, the focus of a previous policy brief.

Figures 5A and 5B give a breakdown of firm expansion for both young and old firms by establishment type. The data indicate numbers of jobs.

In most years, standalone firms account for a higher percentage of the jobs lost and gained among older firms than either of the other categories alone – branches or headquarters. Unfortunately, the number of jobs created at existing, or old, standalone firms has declined relatively steadily since the 2001 recession, as has the number of jobs being created by older headquarters. The only category in which older firms saw an increase in the number of jobs being created between the two most recent recessions is among branches, but that increase was only temporary, lasting two years before falling again. What is perhaps most surprising about the data is that job loss among older standalone firms peaked in 2004-2005, a year of ostensible recovery.

In contrast to older standalone firms, the number of jobs created at young standalone firms has steadily increased going as far back as 1994. By 2007, just prior to the most recent recession, standalone firms represented by far the highest percentage of job growth for young firms across the three establishment types.

The number of jobs created at young headquarters has fallen recently, but the total number represents only a small portion of the total number of jobs created by young firms. The number of jobs being created by young branches was also falling

Figure 5A. Job Expansion and Contraction at Branches, Headquarters, and Standalones (Young Firms)

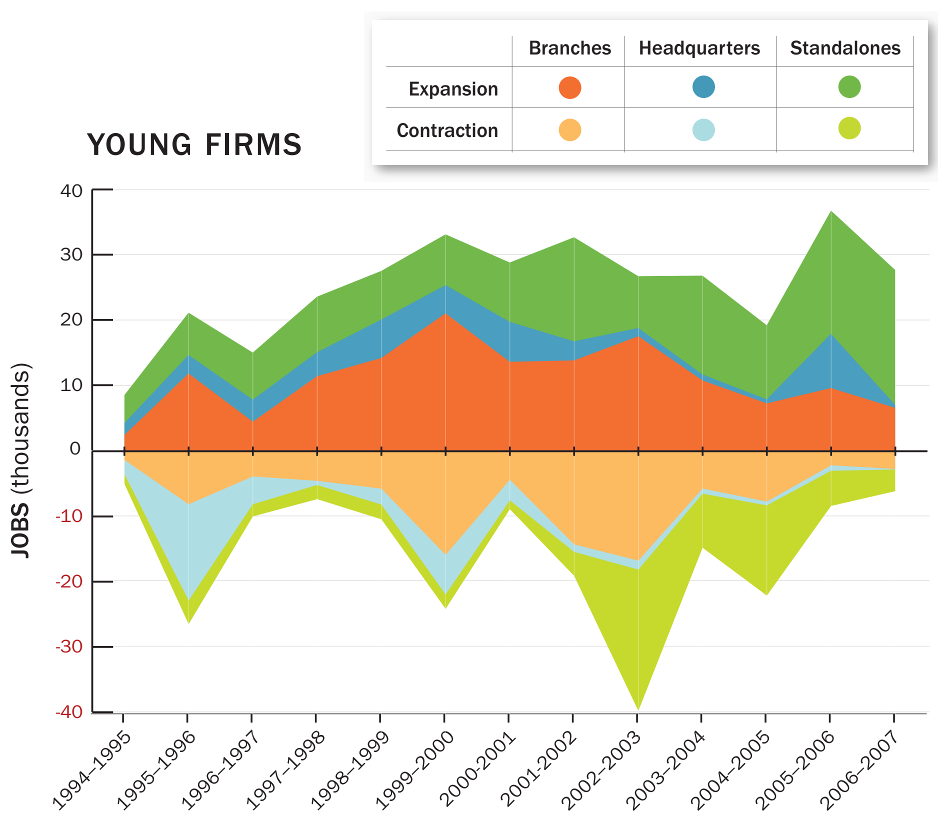
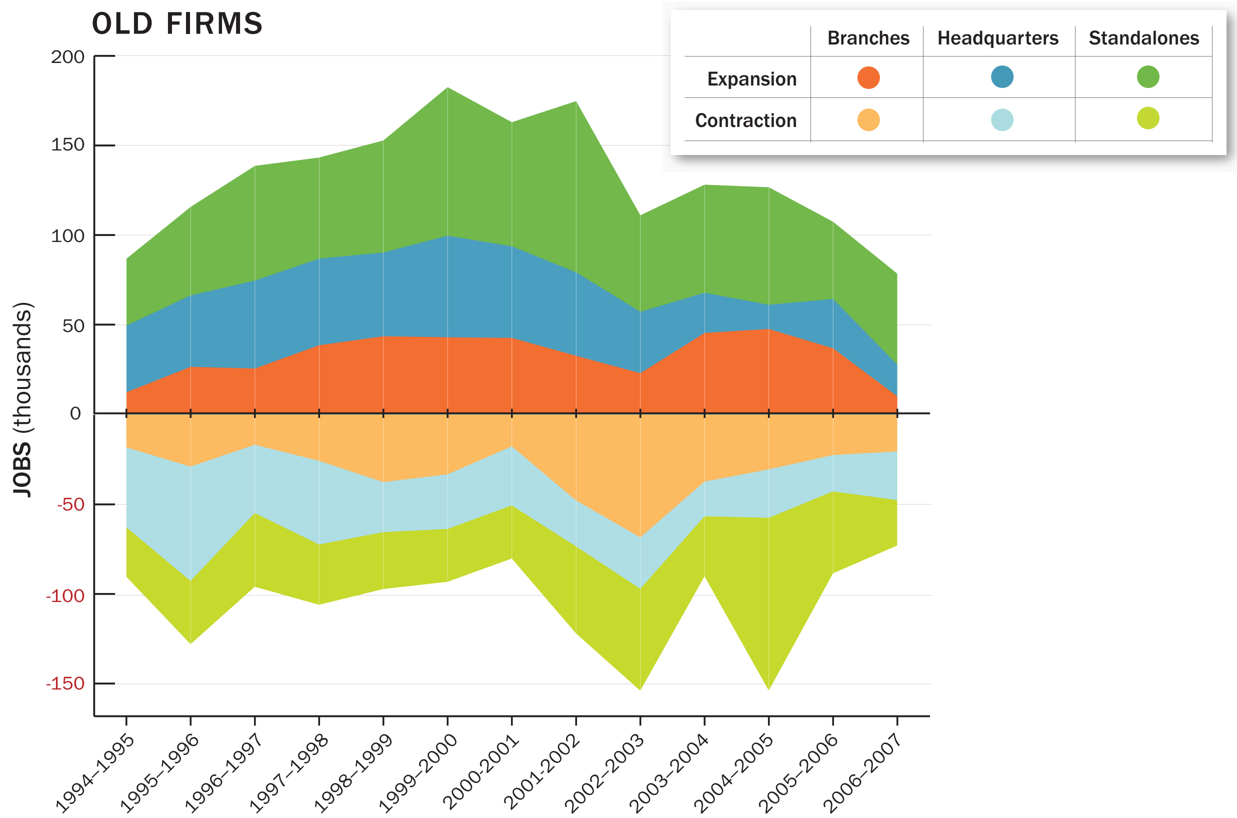


Figure 5B. Job Expansion and Contraction at Branches, Headquarters, and Standalones (Old Firms)



prior to the recession, yet that number remained significantly larger than the number of jobs being lost at young branches due to contraction. In fact, the rate of contraction for young firms across all three establishment types either declined or remained stable after 2003.

Breakdown of Net Expansion in Young and Old Firms by Establishment Type

The net result of expansion and contraction trends across the three establishment types is significantly more growth after 2003 among young firms as a whole. Figure 6 gives a breakdown of the net expansion for both young and old firms by establishment type. Again, data indicate numbers of jobs.

Both young and old firms experienced job growth due to expansion in most years. The largest source of jobs among both young and old firms was standalone establishments. In fact, standalone firms are the only reason that, in the aggregate, older firms experienced any job growth at all from expansion between 1994 and 2007.

Among branches and headquarters, growth trends diverged significantly for young and old firms. Net expansion at headquarters played a relatively larger role for older firms, net expansion at branches a relatively larger role for young firms. The combined impact for older firms was, however, contraction, whereas the combined impact for younger firms was expansion.

Figure 6. Net Job Expansion and Contraction at Branches, Headquarters, and Standalones

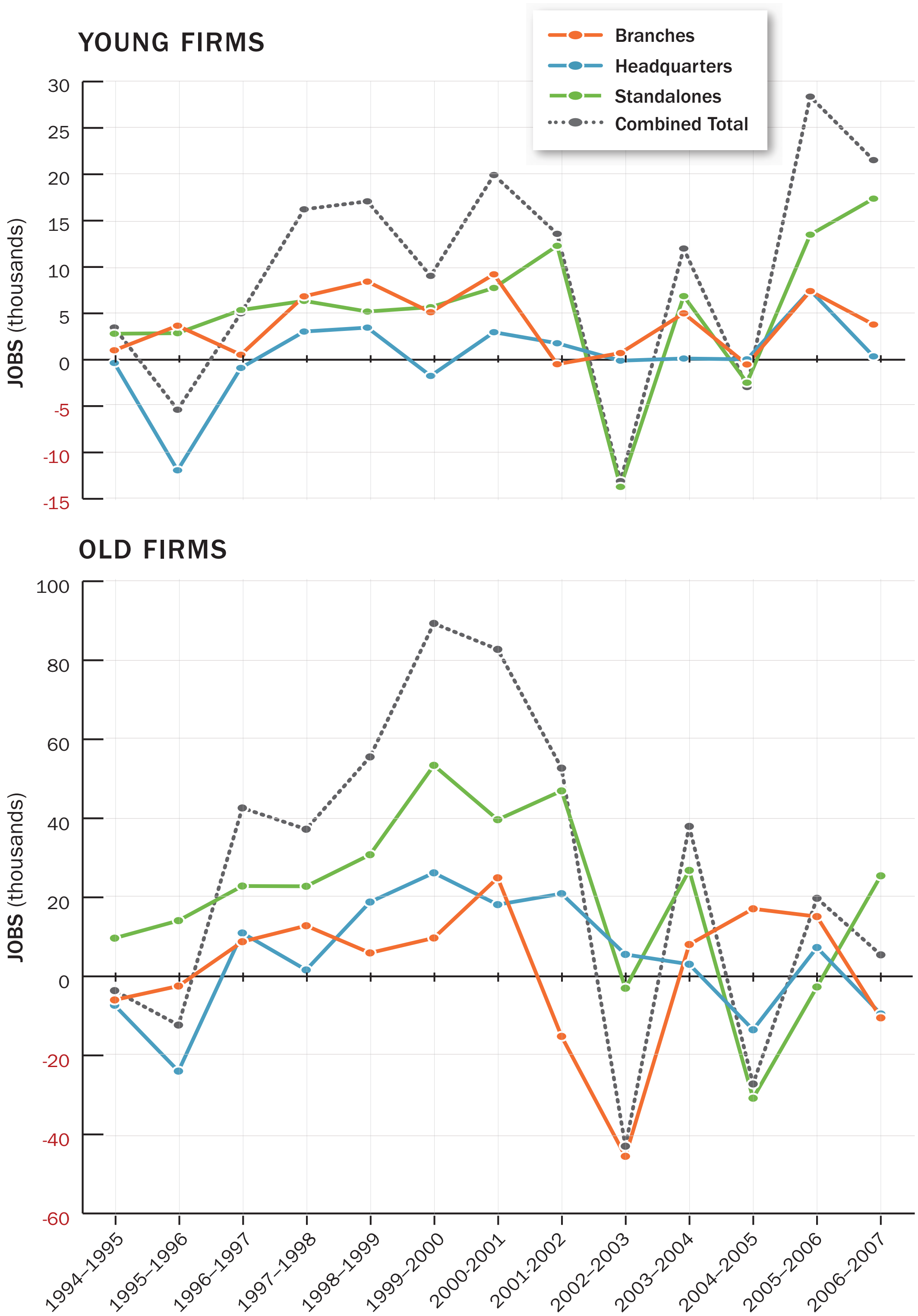
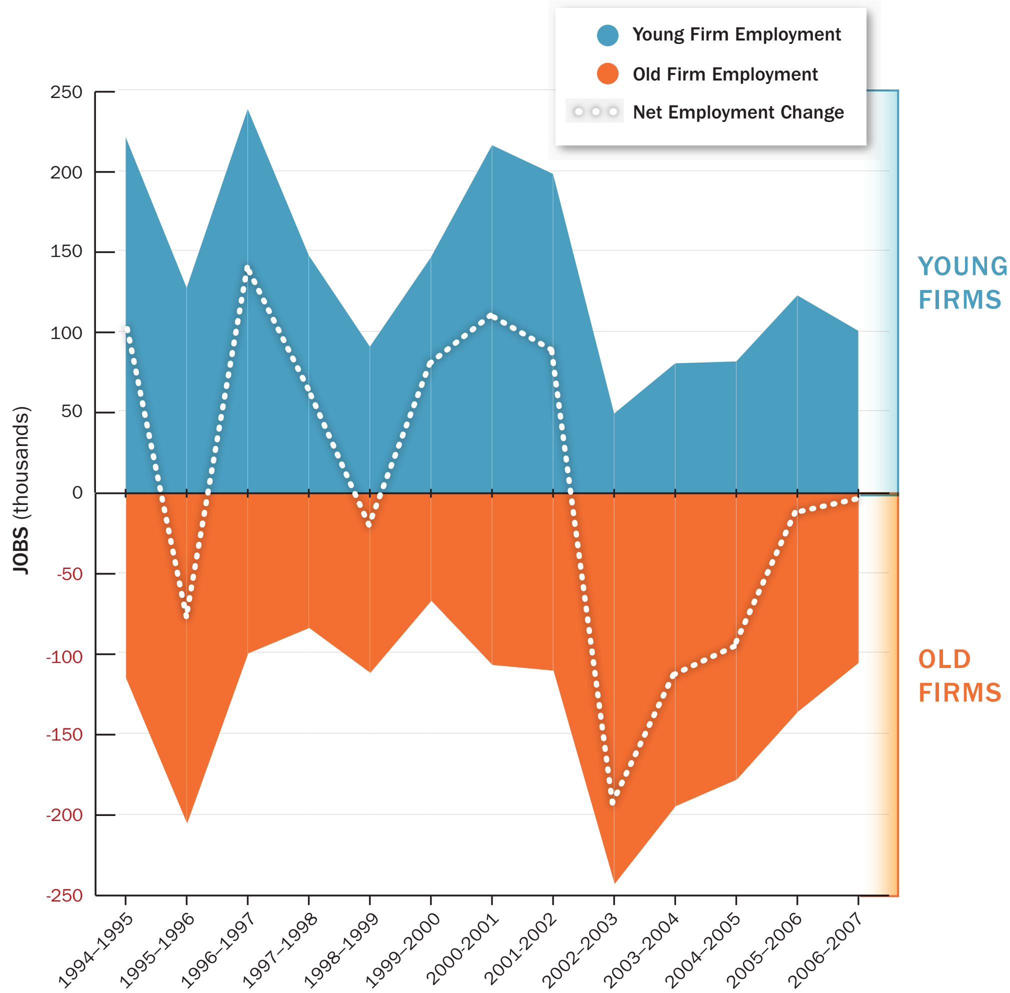


Figure 7. Net Total Employment Trends for Young and Old Firms



Net Total Employment Trends for Young and Old Firms

Finally, what do all the numbers mean for Massachusetts' workers? Figure 7 shows the net employment changes for both young and old firms when we add the number of jobs gained and lost from expansion and contraction with those gained and lost from firm birth and death. Most of the job growth over the given period was generated by young firms. In fact, net job creation at young firms was positive for every year observed, net job creation at older firms negative for every year. The years of negative job growth for the state as a whole were those years in which job creation at young firms was not able to offset the losses at older firms.

Conclusion

This paper analyzed employment trends in Massachusetts from 1990 to 2007, with particular focus on the years immediately following the 1990-1991 and 2001 recessions and on the different impacts on growth trends made by young and old firms. For the purposes of this analysis, 'young firms' were defined as firms from birth to 3 years old. Older firms were any firms operating in the state for more than 3 years.

Coming out of a recession, young firms appear more willing to expand than older firms – this is especially true if the older firms are headquarters. Older firms are more conservative when it comes to rehiring and, on average, take about 5 years to begin expanding aggressively. Therefore, from a policy perspective, young firms are the main generators of job growth coming out of a recession and should be recognized as such. Programs that attempt to prod established firms to rehire are not likely to succeed, as seems to have been the case the last two years in the wake of the most recent recession.

Recession or no, however, Massachusetts has an entrepreneurship problem. Over the course of the last decade, jobs created by firm birth have just not kept up with the jobs lost due to firm deaths. The result is that employment at what have been defined as young firms fell by more than half between 2001 and 2007, even before the onset of the latest recession. As it is in those years that job growth at young firms was unable to offset losses at older firms that Massachusetts experienced negative job growth, any policy that seeks to expand the number of jobs in Massachusetts must focus on generating firm births and then helping young firms expand and grow.

About the Author:

John Friar is Pioneer's Senior Fellow on Jobs and the Economy and the Executive Professor of Entrepreneurship and Innovation at Northeastern University's College of Business Administration. He has researched and written on the subjects of marketing strategy, management of innovation, and technology strategy, with emphases on radical innovations and start-up companies.

About Pioneer:

Pioneer Institute is an independent, non-partisan, privately funded research organization that seeks to change the intellectual climate in the Commonwealth by supporting scholarship that challenges the "conventional wisdom" on Massachusetts public policy issues.

Related Pioneer Publications

The Big Shrink: Declining Establishment Size in Massachusetts, White Paper, May 2011; http://www.pioneerinstitute.org/pdf/110531_TheBigShrink.pdf

Keeping Massachusetts Competitive: The Business Climate in Context, Policy Brief, September 2010; http://www.pioneerinstitute.org/pdf/100916_keeping_ma_competitive.pdf

Playing the Lottery: The Impact of Interstate Relocation on Massachusetts Jobs, White Paper, June 2010; http://www.pioneerinstitute.org/pdf/100616_playing_the_lottery.pdf

Heading Down: The Loss of Massachusetts Headquarters, White Paper, March 2010; http://www.pioneerinstitute.org/pdf/100305_heading_down.pdf

Failure to Thrive: Job Creation and Loss in Massachusetts 1990-2007, White Paper, January 2010; http://www.pioneerinstitute.org/pdf/100129_failure_to_thrive.pdf

New Business Creation and the Urban Economy, Policy Brief, January 2008; http://www.pioneerinstitute.org/pdf/080228_friar.pdf

Unemployment Insurance in Massachusetts: Burdening Businesses and Hurting Job Creation, Policy Brief, January 2008; http://www.pioneerinstitute.org/pdf/08_ui_oleary_poftak.pdf

Measuring Up: The Cost of Doing Business in Massachusetts, White Paper, October 2006; http://www.pioneerinstitute.org/pdf/06_costofdoingbusiness.pdf

Endnotes

1. Figures 1A and 1B utilize Current Employment Statistics from the Bureau of Labor Statistics while the remainder of the paper uses the National Employment Times Series data set.

2. We did the same analysis with a 5 year cut-off, which gave even more credit to young firms. We decided to use a 3 year cut-off to be more conservative and to get a longer time series.

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